

19 October 1964

MEMORANDUM FOR: Assistant for Plans and Development

THROUGH : Executive Secretary, TDC

SUBJECT : Staff Study - Additional Funds to Complete the [REDACTED]
[REDACTED] Panoramic Stereoviewer

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PROBLEM:

To provide additional funds for the completion of the Panoramic Stereoviewer.

ASSUMPTIONS:

- a. Roll-film viewing will always be necessary and desirable.
- b. A roll-film stereoviewer should be capable of handling conventional, convergent and panoramic stereo images in widths from 70 mm to 9.5".

DISCUSSION:

[REDACTED] has encountered several problems in completing a satisfactory Stereoviewer capable of handling conventional, convergent and panoramic stereo roll film. The most serious of these concern the manual X-drive, film curl, glass drums, gear noise, the indicator for image rotation, and several other minor items.

After inspecting the instrument last fall, the monitor informed the contractor that these deficiencies had to be corrected. [REDACTED] reviewed the problems and in February 1964 submitted a proposal for modifications and request for additional funds in the amount of [REDACTED] to complete the viewer. However, a number of the proposed modifications were unacceptable, and the request was refused. The technical monitor informed [REDACTED] that until they demonstrated solutions to these problems, no action would be taken to increase funds.

Since February, [REDACTED] technical personnel have performed a thorough review of the Panoramic Stereoviewer. As a result, solutions of some of the problems have been covered with [REDACTED] funds or modifications have been proposed that appear to be satisfactory.

**DECLASS REVIEW by
NIMA/DOD**

On the present instrument, film tension is maintained at a high level to assure adequate friction between the film and the drum surface for the film to drive the drum when in motor drive and for the drums to drive the film when in manual drive. It was also found necessary to add rubber bands to the drums to provide a sufficient coefficient of friction between drum and film.

25X1A The proposed modification will eliminate the need for bands, and [REDACTED] estimates that the film tension will be reduced by approximately one-half. This should eliminate the film curl that causes scalloping and tearing of film edges. All motor drives presently on the instrument will be used, and the manual control handwheels will be retained. The primary drive modification will be made in the mechanical linkage from the handwheels to the drums and friction and idler rollers will be added to the film loop over the drum.

The present handwheels drive the film manually in the X-direction. Instead of driving the drum by way of a flexible shaft to a large gear on the drum, the flexible shaft will be gear-connected to the friction rollers, which in turn will drive the film and the surface of the drum simultaneously and at the same speed.

A breadboard of the friction system and idler rollers of the proposed drive modification has been installed in the instrument. The tests conducted with this breadboard indicate that the modification will be satisfactory and will permit reduction of the film tension.

25X1A [REDACTED] has obtained a subcontractor who has successfully produced four glass drums. Two of these will replace the two plexiglass drums now on the viewer and the other two will be spares. The glass drums are dimensionally more accurate and considerably more resistant to abrasion than the plastic drums. New drum mounts will be required because of the differences in dimensions of the drums and the expansion characteristics of glass.

The steel drive gears in the X-drive have been replaced with fiber gears. This change has considerably reduced the noise and is judged to be a satisfactory solution to the problem.

The prism rotation rings for image rotation will be replaced with rings similar to those approved for the production models of the [REDACTED] Microstereoscope. The rings indicate the image rotation for every 15 degrees.

At the lower magnifications the projection lamps are used at low voltage and consequently operate at a low color temperature which introduces a noticeable amount of yellow in the viewing area. There is also a hot spot in the center of the field at low magnification.

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A blue ground-glass diffuser, tested with the anamorphic condenser, is located near the film plane: it eliminates the hot spot and filters out the objectionable yellow portion of the spectrum. [REDACTED] proposes to permanently mount similar diffusers to the anamorphic condenser mounts.

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There will also be several minor modifications to improve performance and stability of the instrument.

Funds are currently allocated to the contract in the amount of [REDACTED] [REDACTED] has accumulated expenditures totaling [REDACTED] and has requested an additional [REDACTED] to complete the Stereoviewer. Accumulated expenditures are adjusted to actual rates for 1962 and 1963 as well as provisional rates for 1964.

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[REDACTED] estimates that the Panoramic Stereoviewer can be completed within 120 days after approval is given for additional funds. Approval of the subcontractor who ground and polished the glass drums is also required. Cost of the subcontract was [REDACTED]

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CONCLUSIONS:

The proposal as submitted by [REDACTED] is considered to be sound, and it is predicted that the completed Stereoviewer will be a useful instrument. It is impractical to accept the instrument in its present condition since it could not be properly tested and evaluated.

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RECOMMENDATIONS:

Additional funding in the amount of [REDACTED] should be authorized for completing the [REDACTED] Stereoviewer. This will increase the total contract cost to [REDACTED]

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[REDACTED]
Development Branch, P&DS